CLAIMS:

1. (Currently Amended) A method for modeling a coil spring on a suspension system in terms of derived torque and force characteristics of the spring comprising the steps of:

providing a force field generator for simulating the spring;

securing the force field generator to the suspension system;

activating the force field generator to produce forces for characterizing the spring;

measuring the forces;

measuring ~~the~~ torques; and

deriving a spring design based upon the measured forces and measured torques.

2. (Original) The method according to claim 1, wherein the force field generator has six degrees of freedom.

3. (Original) The method according to claim 1, wherein the force field generator comprises a Stewart platform.

4. (Currently Amended) A method for modeling a coil spring in terms of torque and force characteristics to produce a spring design for an automobile suspension comprising the steps of:

assembling a mechanism having spaced apart moveable platforms and a plurality of actuable links interconnecting the platforms at corresponding joints on opposite ends of each link;

specifying a kinematics relationship between the platforms and the links;

applying the mechanism to the <u>automobile</u> suspension ~~system~~;

actuating the links to generate corresponding applied forces and torques at each joint;

measuring the applied forces and torques; and

deriving the force and torque ~~characteristic~~ characteristics of the spring to be designed based upon the kinematics relationship and the corresponding applied forces and torques at each joint.

5. (Currently Amended) The method according to claim 4, wherein the ~~assembly~~ mechanism has six degrees of freedom.

6. (Original) The method according to claim 4, wherein the platforms are in spaced apart parallel relationship having confronting parallel support surfaces corresponding to opposite ends of the spring to be modeled.

7. (Original) The method according to claim 4, wherein the actuable links employ at least one universal joint.

8. (Original) The method of claim 4, wherein the actuable links employ at least one ball joint.

9. (Original) The method of claim 4, wherein specifying a kinematics relationship between the platforms and the links comprises deriving a vectorial relationship between each link and the platforms.

10. (Currently Amended) The method of claim 9, wherein establishing the vectorial relationships includes deriving force and torque vectors acting on the mechanism by one of said platforms with respect to ~~the other~~ another one of said platforms.

11. (Original) The method of claim 4, further comprising the step of: adjusting the forces applied to each actuable link.

12. (Original) The method of claim 4, further comprising the step of: designing the spring in accordance with the derived force and torque characteristics.

13. (Original) The method of claim 12, wherein the coil spring has a variable pitch and the step of: designing the spring comprises selecting a pitch for the spring for producing a resulting side force in the spring.

14. (Currently Amended) The method of claim 4 wherein the platforms are movable between rest and compressed positions and the deriving step includes the step of computing the force and torque characteristics while the ~~platform is~~ platforms are compressed.

15. (Currently Amended) The method of claim 14, comprising the step of: computing ~~the~~ force and torque vectors employing FEM software.

16. (Currently Amended) The method of claim ~~13~~ 14, wherein computing the force and torque vectors comprises the step of: employing MARC software for computing the force and torque vectors.

17. (Original) The method of claim 16, comprising the step of: converting the computed force and torque vectors for each link into axial forces employing a cubic spline interpolation.

18. (Previously Presented) The method of claim 4, further comprising simulating the system in ADAMS simulation software.

19. (Original) An apparatus for modeling a coil spring on a suspension system in terms of derived torque and force characteristics of the spring comprising: a force field generator for simulating the spring, said force field generator secured in the suspension system, and means for activating the force field generator to produce forces therein for characterizing the spring.

20. (Original) The apparatus of claim 19, wherein the force field generator comprises: a damper including a housing and a telescopic strut, the strut being axially movable between respective fully extended and fully compressed positions; a first support secured to the housing and second support secured to the strut for relative movement in the extended and compressed positions; a plurality of hydraulic cylinders secured between the first and second supports, said hydraulic cylinders being actuable for exerting a force between the first and second supports.

21. (Original) The apparatus of claim 20, wherein the force generator further comprises: a force sensor for each hydraulic cylinder for producing an output corresponding to the force produced by each respective cylinder when actuated.

22. (Original) The apparatus of claim 21, further including a hydraulic circuit for selectively actuating each of the hydraulic cylinders and producing a selectable force therein; control means for controlling the hydraulic circuit; and means responsive to the force sensors in feedback relation with the control means for controlling the forces produced in the cylinders.

23. (Canceled).